ABSTRACT

Methods and compositions for manipulating the arterial-venous identity of endothelial cells are provided. The methods comprise introducing an arterial molecular program into endothelial cells of a vein section such that the endothelial cells can remodel to form arterial endothelial cells. The arterial molecular program can comprise one or more polynucleotides encoding various genes that are associated with arterial development and/or differentiation from veins. Expression vectors comprising the genes can be used to introduce the molecular program into the cells. A method of treating a patient having an obstructed blood vessel is also provided.